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Challenges, Opportunities and Prospects of Open Source Software in Libraries

Pangal Zuber Abdul Majeed¹ and V.S. Mugade²

¹Researcher, Bharati Vidyapeeth Deemed University,
Yashwantrao Mohite College, Pune

²Librarian and Head, Department of Library and Information Science
Bharati Vidyapeeth Deemed University,
Yashwantrao Mohite College, Pune

Abstract: Open source has brought a significant change in the software world. The share of open source has increased in software industry by many folds. It has benefitted many sectors including libraries and it has been widely used as far as functioning and rendering service in libraries. When any new phenomenon occurs it is usually perceived as a challenge, opportunity or with doubt! Open source has entirely replaced commercial software and provided the enormous amount of freedom for libraries. It is now up to libraries to grab the opportunity and implement it without any hesitation. There could be many dissatisfaction and problems associated with it and the author has outlined these difficulties into challenges, opportunities and prospects. In the preceding article, these hurdles have been discussed in detail.

Keywords : Open Source Software (OSS), Free Software Foundation (FSF), Open Source Initiative (OSI)
OSS - Challenges, Opportunities and Prospect

1.1 Introduction

Open Source Software (OSS) is a kind of software whose source code is free to inspect, use, study, modify and run without any restrictions. Users of open source can customize it according to their needs. Despite resounding success of OSS, there has been reluctance among its users as far as its adoption in libraries is concerned. The task of libraries is to expedite access to knowledge, whosoever is engaged in pursuit, inquiry and study of it. The speed of technological innovations has increased in recent years and that added new challenges to the libraries. The traditional set up of libraries is no longer sustainable has been successfully replaced by digital way of handling information. The effective conversion of libraries from traditional to digital requires expensive IT infrastructure including software. It has played a very crucial role and is mainly related to the functioning of a system. As far as software in libraries is concerned OSS is the cheapest solution to all libraries' needs. It is available with almost no cost; free from licensing fees and even doesn't charges for multiple installations at different locations. While the adoption and implementation of OSS some difficulties crop up though if dealt with proper attention and strategy it can be overcome. It has a rich history and is worth to mention here the people who initiated this great movement and their philosophies behind the movement.

1.2. Historical Background

The history of Open Source Software (now referred as OSS) is very old but surfaced after Richard

Stallman's resignation from Massachusetts Institute of Technology's AI Laboratories due to the company's decision of adoption of commercial software. Ethically he felt unjust that software should not be used and sold as a product. Stallman advocates that software should be free and it is for this very purpose he established the 'Free Software Foundation' and started the movement of 'Free Software' in 1985. The foundation on its portal (Free Software Foundation, 2016) speaks about free software "It means software that respects users' freedom and community. It means that the user has the freedom to run, copy, distribute, study, change and improve the software. Thus free software is a matter of liberty and not price." The foundation converts the above philosophies into four essential freedoms. They are ; freedom to run; freedom to study and change; freedom to redistribute copies of software; and freedom to distribute copies of modified versions. In 1998 Eric Raymond and Bruce Perens founded the Open Source Initiative (OSI) and formed the distribution terms of OSS (Open Source Initiative, No date) that must comply with the criteria that all "OSS allows free redistribution; modification; open source code; no discrimination against group, person or endeavor; technological neutral; license must not be product specific; integrity of the author's source code; and no restriction on other software". The term free and open source is interchangeable. Sometimes they have been referred as Free Software (FS), Free / Libre Open Source Software (FLOSS), Free and Open Source Software (FOSS). These terms have been used alternatively and finally settled to Open Source Software (OSS). Although there are quite difference of views

between open source i.e. free software foundation and open source initiative.

1.3. OPEN SOURCE CHALLENGES AND OPPORTUNITIES

While working with OSS many libraries encounter with various challenges and opportunities to learn and overpower these hurdles. Some of the challenges and opportunities are mention below.

1.3.1 Economic Stability

OSS gives economic stability to use software to budget constrained libraries. It bridges the gap of digital divide and even gives an opportunity to libraries to think over their software selection. As said 'a penny saved is a penny earned' then why should libraries spend heavily if free solution is available at their disposal. OSS does not only support the organizations and also governments of many developed and underdeveloped countries as compare to commercial software. The benefits are obvious it saves cost of software; inner talent can be groomed for further development and customization of software.

1.3.2. Professional Development Opportunity

OSS helps gain professional development. In this age of technology, librarians need to upgrade their technological skills which will help them give various technical based services. On-line learning, e-course, content development software, digital repositories, subject gateways are some of the areas where librarians should equip to handle challenges. If they are not learning these new skills they won't be able to handle users' requirement electronically. OSS has produced such software for libraries that by adopting it, librarians can save their place in this technologically driven society else their recognition will no longer require in the modern era.

1.3.3. Organizing Workshops; Training Programs

OSS is a collaborative endeavor. There is no author and the product is belongs to the team of developers who develops it. The developer could be from any part of the world working devotedly without any monetary gains. Librarians on the other hand enjoy the benefits without bothering about the efforts put in to accomplish the product. In the same spirit at least librarians can organize conferences, seminars and workshops to train the under privileged professionals for maximum utilization.

1.3.4. Active Participation

The successful implementation of OSS is depends on active involvement and participation in contributing to the OSS community. It does not require to be an IT expert for the same. There are various tasks and assignments one can pick depending on capabilities. There are; discussion group; mailing list; links and forums available to

help OSS because being active member it will help to learn more techniques and skills to handle OSS.

1.3.5. Evaluation Technique

OSS has developed many software packages under different category. In library automation alone there are more than fifteen software packages are available. Evaluation can be done assigning scores to different modules and features in particular software. It can also be assessed through peer contacts and suggestions.

1.3.6. Automation, Web design, Content Management and Development

Many libraries are not fully automated most of them don't have their own portals and most of their contents are not available electronically. Reasons are obvious that either they lack funds authorities are not bothering about giving access to information electronically; or appointed librarians are not technologically literate. It's a challenge and opportunity both for authorities and librarians that they can overcome by just switching to OSS. The advantages of content creation can be shared through local networks. OSS offers software related with institutional repository and among the prominent one is DSpace, where text, audio and video files can be uploaded. Automation of libraries is a must. It displays information about library holdings. Automation software packages are very expensive and OSS has developed very powerful automation software and one of the most widely use software is Koha. It is challenge as well as opportunity for library professionals to learn and implement this software in their libraries.

1.3.7. Common Challenges Associated with OSS

There are some common challenges which are associated with OSS they are concerns about software quality, security and support; integration of open source with the existing system and availability of skills to manage the software. OSS does not leave its users helpless or intend to put them in utter chaos. The solutions to these challenges will be easily dealt by attaining proper training before it is actually implemented. The OSS community is the strongest community built to fix error, bugs and provides solutions through its well-designed manuals, support from discussion groups, peers, forums and links.

1.4. OPEN SOURCE PROSPECT

The prospect of any product depends on features and promises it makes. OSS ensures better quality, scalability, interoperability, reliability, flexibility, lower cost and end to vendor lock-in. OSS prospect also depended on features like open source code; open source licensing; community support; vendor lock-in; analogy of software; budget cuts; non-profit foundations and social prospect.

They are explained in detail as follows.

1.4.1. Open Source Code

"The source code is the human-readable programming instructions" (Wikipedia, 2016). When the source code is revealed with the software it is easy to modify it. Commercial vendors only release the binary version of the source code which is very difficult to read. "Source code is that part of software that most computer users don't ever observe. It's the code computer programmers can manipulate to change a piece of software - a "program" or "application"- workings. Programmers who have access to a computer program's source code can improve that program by adding features to it or fix parts that don't always work correctly" (Redhat, No date) . Hence, the source code is very important for modifications. It is this perspective which makes OSS successful

1.4.2. Open Source Licensing

Open Source Software must be released under the license formed by the 'free software foundation' or 'open source initiative.' "The fundamental purpose of open source licensing is to deny anybody the right to exclusively exploit a work." (Laurent , 2004). Before the release of the software, it is the responsibility of the developer to read the terms and conditions and adheres to those conditions. The basic condition of the licenses is the software's source code must be free to view, study and use. It is this condition which makes OSS special as compared to commercial software.

1.4.3. Community Support

One of the most advantageous features of OSS is that it has a strong community. Developers around the globe contribute to making the product special as compared to commercial vendors where developers are hired and there is no guarantee about their tenure in that company. In OSS arena suppose if the developers are no longer supporting or developing the product yet source code is open and anybody who is interested can further develop the product.

1.4.4. Vendor Lock-In

The biggest success of OSS is that it is free from vendor lock-in. Users are granted certain freedom to run, copy, modify, view and redistribute the software without any restrictions whereas in commercial field it is totally reverse. The source code is considered as intellectual property and is not allowed to be shared among peers.

1.4.5. Analogy of Software

As compared to other types of software such as freeware, shareware, proprietary, public domain, trialware, customizes, and in-house developed, OSS turns out to be the best. In all the other types there are some limitations and features are scanty.

OSS comes with full-fledged features and release of new versions gives stability and bugs free access to applications.

1.4.6. Budget Cuts

A major relief that OSS promises is almost no cost and alternative to expensive commercial software packages. Escalating prices of journals and electronic resources makes libraries difficult to cope up with the technological pace. In this scenario OSS is the most suitable alternative to all the problems related with IT.

1.4.7. Non-profit Foundations

The inception of OSS is based on non-profit initiatives. Richard Stallman's free software foundation and Eric Raymond's open source initiative are the two major foundations that strive to work for free software for all. Although there are some commercial benefits but the basic idea is that the source code must be free; should not be restricted from users; modification and redistribution of software to be allowed.

1.4.8. Social Prospect

The major social benefit of OSS is that a country can build its own software. Instead of importing expensive software from other countries it can be developed their own software which will not only help them to cut expenses incurred towards buying software but at the same time, young talent will get an opportunity to engage in developing new software for the nation. "Open source software is often touted to be ideal for accelerating the growth of low-income countries' IT sectors, with the expectation that it will increase their propensity to innovate." (Amant & Still, 2007)

CONCLUSION

Open Source Software (OSS) has fascinated mammoth media and research attention since its inception in 1985. Today it is no longer just hype or a momentary fad. It has grown into a huge industry where millions of developers and products are made for users. Libraries are one of the major beneficiaries of OSS movement. There is nothing called free lunch and that fit for OSS also. Library professionals are bound to face certain challenges in adoption of OSS. These challenges can be cross if they are dispensed with utmost attention. At the same time, these challenges could be turned into opportunities also. It will enable library professionals to get closer to technology and acquaint with the complexities arise by handling OSS. The prospect of OSS covers and ensures that it will continue to gain significant grounds and by the passage of time, it will uproot commercial counterparts. The wide usage of OSS is the key to its success. Hence, libraries must adopt and switch to OSS for their own social and economic benefits.

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